

Field Study Section

By visiting the park one can use weather monitoring equipment and work with a ranger to see first hand how the park might be affecting the weather, and explore possible outcomes for the future.

When one visits Anacostia Park, one might find:

- Plants and water mitigate warming from hard city surfaces
- Pervious surfaces absorb rainwater reducing flooding
- Park fields and wetlands are cleaning the water as the city uses more water for more uses
- The basin of the park itself is a catch basin for floods if sea levels rise as predicted over time
- The living ground cover of the park may be trapping heat and pollutants, or slowing wind

Finding the Anacostia Park's Role: **patterns and relations, data analysis, measurements for science through technology, scientific thinking and inquiry, cumulative nature of scientific evidence, distinguish between conjecture and evidence, watershed and wetlands**

Pre-visit: Learn about watersheds and tides: Equipment needed. The watershed map below (answer given on next page) photos (included), tide chart from <http://www.saltwatertides.com/dynamic.dir/potomacsites.html> and click on Anacostia River.

Learning standards number sense, data analysis: gather, organize, and analyze data, scientific inquiry, identify variables

Time involved: an hour

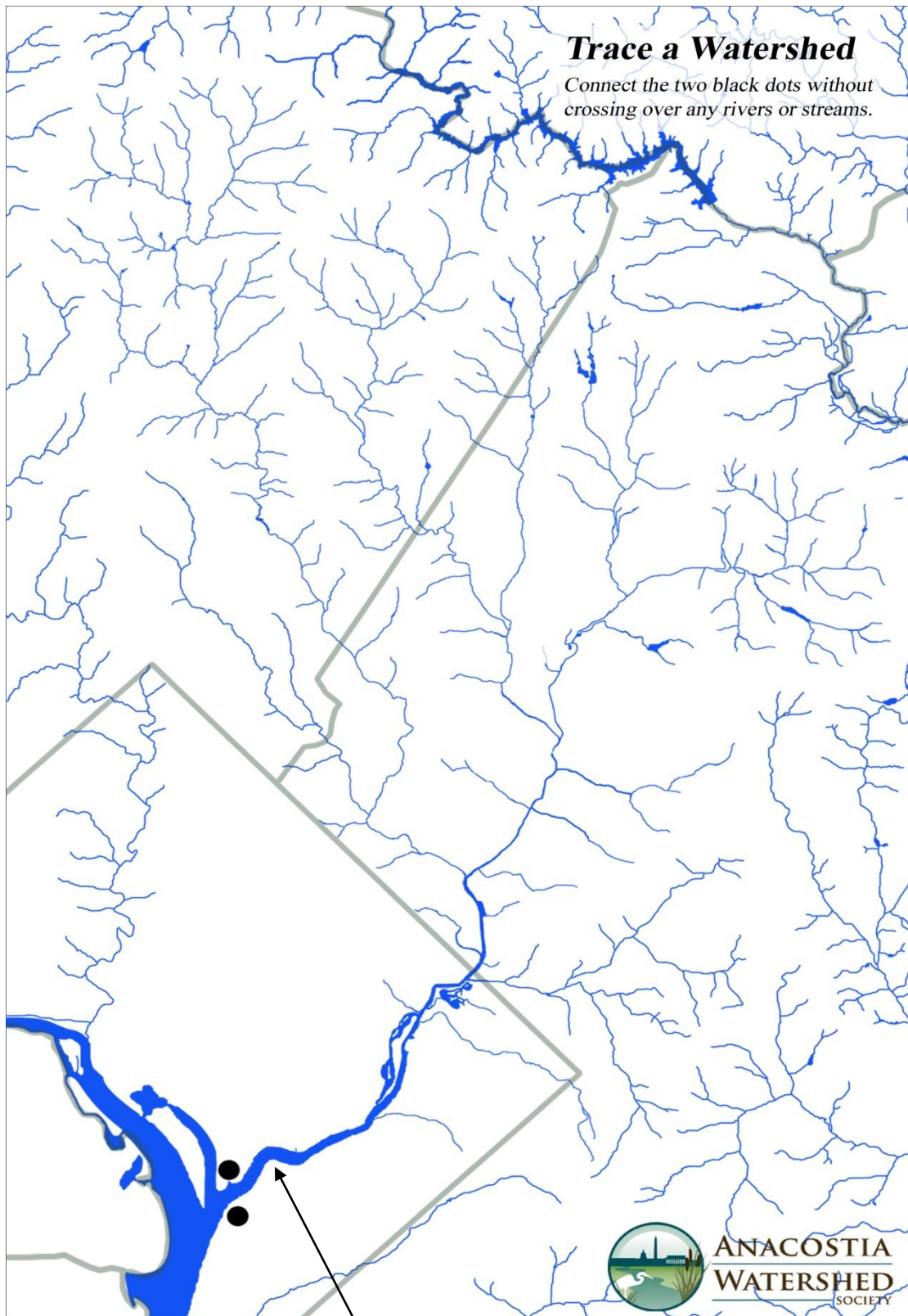
Skills used: Science methodology, ecology, data collection and organization, identifying factors of change

Explanation: A watershed is the land that drains into a body of water such as a river. On the map below the river with the arrow pointing to it is the Anacostia River that flows through Anacostia Park. Print out the map that follows and draw a line around the streams that flow into the Anacostia River.

Anacostia Park runs almost the length of the Anacostia River as it flows through Washington, DC. Throughout the watershed, the area is heavily developed with roads, businesses, and homes. Most of the original wetlands of the Anacostia River are now developed as businesses, and recreation areas. The park is a green space running through a very urban area. Does Anacostia Park, an area of wetlands, grass, and trees have a role in the developing story of climate change?

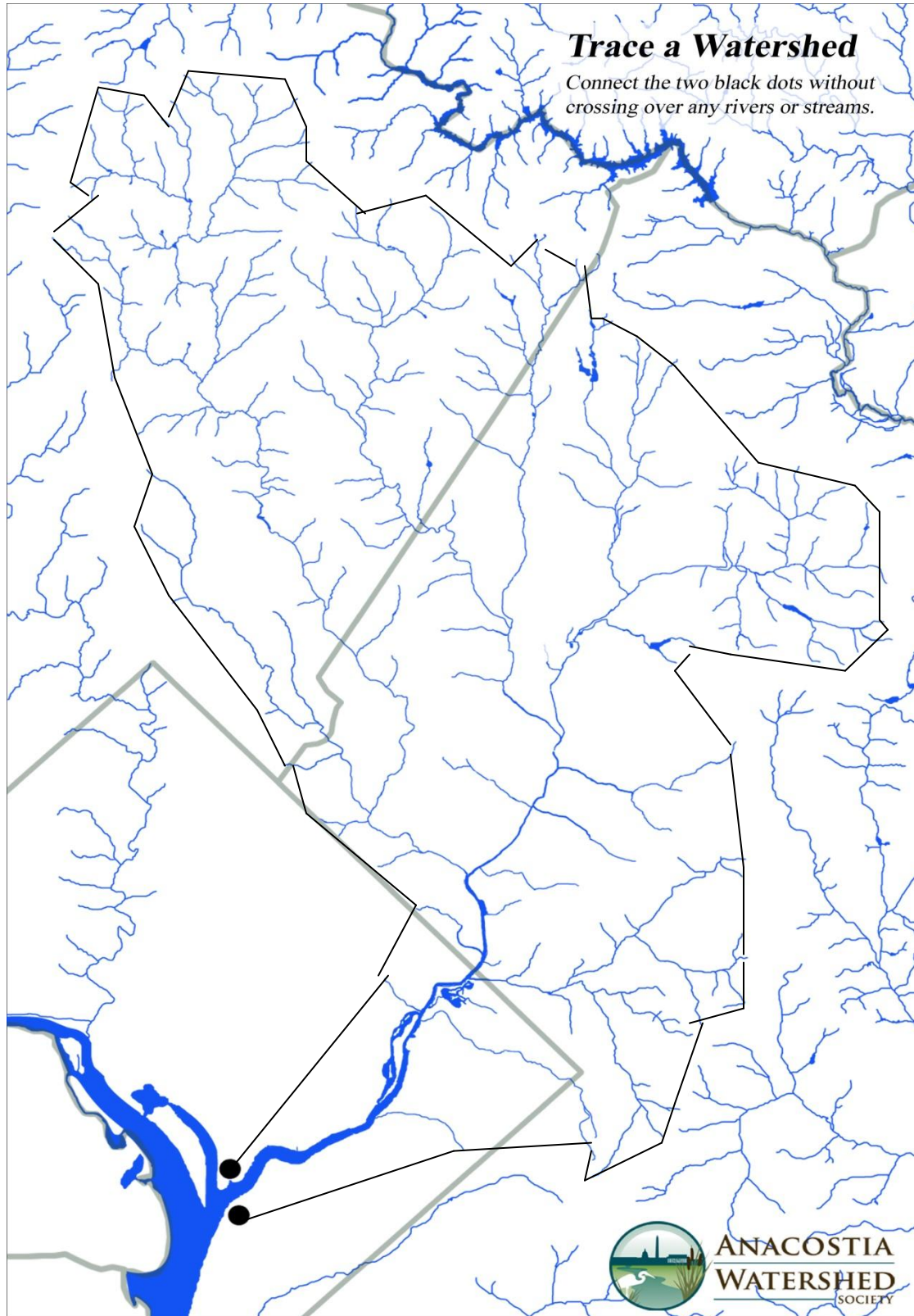
Trace a Watershed

Connect the two black dots without crossing over any rivers or streams.



**ANACOSTIA
WATERSHED**
SOCIETY

Anacostia River



What is now Anacostia Park used to be wetlands where people grazed cattle, fished or hunted, and flooded regularly. Wetlands is a general term applied to land that is flooded on a regular



basis. In the photo above, the areas that have plants are the wetland, the area between is the Anacostia River. You may notice the Capitol dome in the background. The cattle making a path through the plants to drink are one of the causes of erosion in wetland areas. Soil washes down that path and begins filling in the river. A river without paths through the wetlands that line it has better water quality because the plants trap the soil and keep it on the dry land. Over time wetlands and river channels will change. It is sudden changes that cause the most damage.

Soil began washing into the Anacostia River as people cut trees in the Industrial Revolution for fuel, and kept getting worse. This filled in the river with mud where deep water and fish used to be. In the early 1900s Congress authorized the Corps of Army Engineers to dredge the river. In doing so, they filled in the remaining wetlands that use to clean the water and absorbed flood waters. The sea wall along the river below Benning Road is from that era.

The dry land created was used for grazing, a garbage dump, and recreation. No one knew what to do with it as it still flooded regularly. In the 1920s it was made park land to protect the scenery and water quality and provide a place for people to play.

In the 1960s a Georgia professor, Dr. Odum, showed the value of wetlands to society which reversed a national policy of wetland destruction. Today, we are rebuilding wetlands north of Benning Road and saving those that exist.

This makes Anacostia Park a strip of nature in a large area of hard, human made surfaces. This may or may not have an impact on the long term temperature of the air, the humidity, and wind speeds. We know it impacts how much water soaks into the ground. If the park does show a consistent long term impact we can say it is a microclimate in the metropolitan area. This is what we encourage schools to investigate.

Are plants and water combining to keep the area cooler than the rest of the city? Does the open land stay warmer in winter?

Does the pervious nature of the ground allow water to go into the ground to reduce flooding?

As the nation demands more and more water, is the Anacostia Park saving water for our needs?

If sea levels rise, will the basin of Anacostia Park be enough to absorb that rise and protect the rest of the area from flooding?

Using the photos here and a street map of Washington, DC determine if the surfaces along the river are going to allow rain to go directly into the ground or are they going to shed rain and snow into storm drains or other hard surfaces. The more open areas, the more likely rain or melting snow will seep slowly into the ground to recharge the underground waters supply.









The height of land a block from the park is 6 feet above regular low tide. The difference between high and low tide is about 3 feet on average but it varies through the year depending on the moon and amount of water in the streams that feed the Anacostia River. Look at the tide chart at <http://www.saltwatertides.com/dynamic.dir/potomacsites.html> and click on Anacostia River. and track tide heights for the months of March, June, September, and December. Average the tide for each of these months by adding all the tide heights for each month and dividing by the number of high tides in the month. Is there a difference between the four months? Average the 4 averages together for an estimate of the yearly average. How would a one foot rise in water levels impact the area a block from the park in each of the 4 months?